EXHIBIT M

Smith Economics Group, Ltd.

A Division of Corporate Financial Group

Economics / Finance / Litigation Support

Stan V. Smith, Ph.D.
President

August 16, 2019

Mr. John M. Eubanks
Motley Rice
28 Bridgeside Blvd.
Mt. Pleasant, SC   29464

    Re: Ogonowski

Dear Mr. Eubanks:

You have asked me to calculate the value of certain losses subsequent to the death of John Ogonowski. These losses are: (1) the loss of wages and employee benefits; (2) the loss of farm services; and (3) the loss of the value of life ("LVL"), also known as loss of enjoyment of life.

QUALIFICATIONS AND EXPERIENCE

I am President of Smith Economics Group, Ltd., headquartered in Chicago, IL, which provides economic and financial consulting nationwide. I have worked as an economic and financial consultant since 1974, after completing a Research Internship at the Federal Reserve, Board of Governors, in Washington, D.C. My curriculum vitae lists all my publications in the last 10 years and beyond.

I received my Bachelor's Degree from Cornell University. I received a Master's Degree and my Ph.D. in Economics from the University of Chicago; Gary S. Becker, Nobel Laureate 1992, was my Ph.D. thesis advisor. The University of Chicago is one of the world's preeminent institutions for the study of economics, and the home of renowned research in the law and economics movement.

As President of Smith Economics, I have performed economic analyses in a great variety of engagements, including damages analysis in personal injury and wrongful death cases, business valuation, financial analysis, antitrust, contract losses, a wide range of class action matters, employment discrimination, defamation, and intellectual property valuations including evaluations of reasonable royalty.

I have more than 40 years of experience in the field of economics. I am a member of various economic associations and served for three years as Vice President of the National Association of Forensic Economics (NAFE) which is the principal association in the field. I was also on the Board of Editors of

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the peer-reviewed journal, the Journal of Forensic Economics, for over a decade; I have also published scholarly articles in this journal. The JFE is the leading academic journal in the field of Forensic Economics.

I am the creator and founder of Ibbotson Associates' Stock, Bonds, Bills, and Inflation (SBBI) Yearbook, Quarterly, Monthly, and SBBI/PC Services. SBBI is currently published by Duff & Phelps and is also available on various Morningstar, Inc. software platforms. SBBI is widely relied upon and regarded as the most accepted and scholarly reference by the academic, actuarial and investment community, and in courts of law. The SBBI series, which acknowledges my "invaluable role" as having "originated the idea" while Managing Director at Ibbotson Associates, is generally regarded by academics in the field of finance as the most widely accepted source of statistics on the rates of return on investment securities.

I wrote the first textbook on Forensic Economic Damages that has been used in university courses in various states; as an adjunct professor, I created and taught the first course in Forensic Economics nationwide, at DePaul University in Chicago. I have performed economic analysis in many thousands of cases in almost every state since the early 1980s.

BACKGROUND

John Ogonowski was a 50.5-year-old, Caucasian, married male, who was born on ████████████████, and died on September 11, 2001. Captain Ogonowski's remaining life expectancy is estimated at 29.5 years. This data is from the National Center for Health Statistics, United States Life Tables, 2015, Vol. 67, No. 7, National Vital Statistics Reports, 2018. I assume an estimated trial or resolution date of January 1, 2020.

In order to perform this evaluation, I have reviewed the following materials: (1) tax returns from 1998 through 2001; (2) an economic report by Mr. Donald Frankenfeld dated November 10, 2003; (3) documents bates stamped 212-002452-0001 through 212-002452-0822; (4) an interview with Margaret Ogonowski on July 23, 2019; and (5) the case information form.

My methodology for estimating the losses, which is explained below, is generally based on past wage growth, interest rates, and consumer prices, as well as studies regarding the value of life. The effective net discount rate using statistically average wage growth rates and statistically average discount rates is 0.25 percent.

My estimate of the real wage growth rate is 1.00 percent per year. This growth rate is based on Business Sector, Hourly

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Compensation growth data from the Major Sector Productivity and Costs Index found at the U.S. Bureau of Labor Statistics website at www.bls.gov/data/home.htm, Series ID: PRS84006103, for the real increase in wages primarily for the last 20 years.

My estimate of the real discount rate is 1.25 percent per year. This discount rate is based on primarily the rate of return on short-term U.S. Treasury investment for the last 20 years. The data is from the statistical series H.15 Selected Interest Rates, published by the Board of Governors of the Federal Reserve System found at www.federalreserve.gov. This data is also published in the Economic Report of the President Table for "Bond yields and interest rates" for the real return on U.S. Treasury investments.

Estimates of real growth and discount rates are net of inflation based on the Consumer Price Index (CPI-U), published in monthly issues of the U.S. Bureau of Labor Statistics, CPI Detailed Report (Washington, D.C.: U.S. Government Printing Office) and available at the U.S. Bureau of Labor Statistics website at www.bls.gov/data/home.htm, Series ID: CUUR0000SA0. The rate of inflation for the past 20 years has been 2.16 percent.

I. LOSS OF WAGES AND EMPLOYEE BENEFITS - Annual Employment

Tables 1 through 9 show the loss of wages and benefits. Captain Ogonowski was a B-767 Captain for American Airlines at the time of his death. Captain Ogonowski began working as a commercial airline pilot in 1978 and was promoted to Captain at American in 1989. Based on the letter from Chief Pilot William K. Bronson dated April 23, 2003, Captain Ogonowski would have been promoted to Captain on the B-777 on or about May, 2002, which would have resulted in an increase in his monthly salary of approximately 15.1 percent. Captain Ogonowski's wife, Margaret, states that her husband was aware that he was close to being promoted and planned to continue working at American until he reached mandatory retirement age, which increased to age 65 after his death. Based on Captain Ogonowski's tax returns and W-2s, he earned $199,062 in 2000.

Based on the Agreement between American Airlines, Inc. and The Air Line Pilots in the service of American Airlines, Inc. as represented by the Allied Pilots Association Effective May 5, 1997, the Captain pay rates for over 12 years of service effective August 31, 2001 were $201.88 for 767-300 pilots. The Captain pay rates for 777 pilots were $229.86 for 777-200 and $235.04 for 777-300, which averages $232.45 and is an increase of 15.1 percent over the 767 pay rate. Based on the contract, the annualized pay increase for 2001 was 1.65 percent. Based on information from Airline Pilot Central found at www.airlinepilotcentral.com, as of April 11, 2019, the pay for a 777 Captain with 12 or more years of service is $342. This

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results in an average increase of 2.11 percent from 2001 to 2019, which is consistent with inflation, which was 2.09 percent from 2001 through 2018.

The wage estimate is illustrated at Captain Ogonowski's 2000 earnings of $199,062. The wage estimate is illustrated at grow at inflation of 1.55 percent in 2001 and 2.38 percent in 2002. The wage estimate in May 2002 is illustrated to increase at 15.1 percent based on Captain Ogonowski's promotion to a B-777 Captain. The wage estimate is illustrated to increase at inflation of 1.88 percent in 2003, 3.26 percent in 2004, 3.42 percent in 2005, 2.54 percent in 2006, 4.08 percent in 2007, 0.09 percent in 2008, 2.72 percent in 2009, 1.50 percent in 2010, 2.96 percent in 2011, 1.74 percent in 2012, 1.50 percent in 2013, 0.76 percent in 2014, 0.73 percent in 2015, 2.07 percent in 2016, 2.11 percent in 2017, 1.91 percent in 2018, and estimated inflation of 2.0 percent in 2019 and 2020. Future wages are grown at zero percent real growth.

Employee benefit estimates are based on actual benefit information as well as data from the U.S. Department of Labor, Bureau of Labor Statistics, Employer Cost of Employee Compensation - December 2018, 2019, found at www.bls.gov/ect. Based on the Pilot Retirement Benefit Program, pilots have two parts to their retirement plan, the A Plan and the B Plan. The A Plan is entirely funded by American, and the company contributes 22 percent of pensionable earnings to the B Plan. Based on a letter from Caroline DeEsposito of O.A. Pension Services, NJ Inc. dated July 9, 2003, the projected employer contribution for 2001 for Captain Ogonowski is $52,213, which is 25.8 percent of his projected 2001 earnings. Based on the Your Benefits pamphlet, American also provides medical and dental benefits, and the company pays approximately 90 percent for medical coverage and all or most of the cost for dental. Based on an email from Mike Russo from American Airlines dated March 26, 2003, the total cost for single coverage for in 2001 was $2,115.60 for medical and $175.68 for dental. Assuming American contributes 90 percent (which is consistent with the actual amount paid by Captain Ogonowski prior to his death), the employer contribution to medical and dental coverage is estimated to be $2,062.15, which is 1.0 percent of Captain Ogonowski's projected 2001 earnings. Social Security benefits are illustrated at 6.2 percent of the 2001 Social Security maximum earnings of $80,400, which is 2.5 percent of Captain Ogonowski's projected 2001 earnings. I have assumed that employee benefits grow at the same rate as wages and are discounted to present value at the same discount rate. Since these tables assume annual work, I do not include employee benefits relating to unemployment, injury, illness or disability; benefits are estimated at 29.3 percent of wages.

Personal consumption is an offset of the income. I use a personal consumption offset based on a study by Ruble, Patton,

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and Nelson, "Patton-Nelson Personal Consumption Tables 2011-12," Journal of Legal Economics, Vol. 21, No. 1, 2014, pp. 41-55, based on data from the U.S. Department of Labor, Bureau of Labor Statistics, "Consumer Expenditure Survey, 2011-12," Washington DC, 2012, which shows personal consumption in this case to be illustrated at 6.5 percent for a 5-person household through 2007, 8.8 percent for a 4-person household in 2008 and 2009, 10.1 percent for a 3-person household from 2010 through 2012, and 12.6 percent for a 2-person household from 2013 and thereafter.

I assume annual employment each year and show the accumulation through life expectancy. While these tables are calculated through the end of life expectancy, the losses from working through any age can be read off the table.

Based on the above assumptions, my opinion of the wage loss is $10,163,072 ▸ Table 9; this figure assumes work to age 80.0, but the ability to work through any assumed age may be read from Table 9; for example, the wage loss through 2015, to age 65, is $4,657,301.

II. LOSS OF FARM SERVICES

Tables 10 through 12 show the loss of Captain Ogonowski's farm services. Mrs. Ogonowski states that they had 120 acres of farm, and they had 10 acres for immigrant farmers and then her husband farmed 110 acres himself. She states that they had three different immigrant farmers on the property, and her husband helped farmers from Cambodia, Vietnam and Africa learn how to farm in the United States. She states that they did this in cooperation with the community, and they would lend land to the immigrants free of charge and her husband would train the farmers. She states that they would become independent, but her husband would still plow for them and help them. Mrs. Ogonowski states that the land her husband farmed was primarily a hay farm. She states that they also have 150 peach trees, blueberries, pumpkins, and corn, and it was a real working farm.

Mrs. Ogonowski states that her husband would work all day on the farm when he was not flying for American. She states that he would generally be gone 2 to 4 days per week flying for American, and then he would be working on the farm the remaining days during the week. She states that he would be up at the crack of dawn, and then they would not see him again until it was dark. She states that her husband did all he work around the farm, including the planting, harvesting, selling, maintaining the equipment. She states that her husband's father and brother also had farms, so they would often work together and help each other. She states that during the winter he worked less in the fields, but there was still work that needed to be done. He would deliver hay during the winter, and he would do maintenance and

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repairs on the all the equipment. Additionally, he had to have a
license for the pesticides, so he would take classes to keep his
license up to date. Mrs. Ogonowski estimates that her husband
was working at least an average of 40 hours per week at the farm,
in addition to his full-time job. She states that he did not
help much around the house because he was always working on the
farm. She states that since they continued to live on the farm,
the property and farm need to be maintained.

Captain Ogonowski's farm services are illustrated at $63,003 in
year 2018 dollars based on an average of 40 hours per week at the
mean hourly rate for farmers, ranchers, and other agricultural
managers in the Boston-Cambridge-Nashua, MA-NA metropolitan area
of $30.29 in year 2018 dollars from the U.S. Bureau of Labor
Statistics, Occupational Employment Statistics, May 2018
Occupational Employment and Wage Statistics found at
www.bls.gov/oes. The farm services are grown at the national
average wage growth rate of 3.84 percent in 2001, 2.05 percent in
2002, 5.27 percent in 2003, 4.41 percent in 2004, 3.04 percent in
2005, 3.89 percent in 2006, 4.08 percent in 2007, 2.94 percent in
2008, 1.05 percent in 2009, 1.23 percent in 2010, 0.52 percent in
2011, 5.87 percent in 2012, zero percent in 2013, 2.57 percent in
2014, 2.46 percent in 2015, 2.14 percent in 2016, 3.01 percent in
2017, 2.92 percent in 2018, and an estimated national average
wage growth rate of 3.0 percent in 2019 and 2020. Future wages
are grown at a 1.0 percent real rate.

Based on the above assumptions, my opinion of the farming
services loss is $1,689,401 ► Table 12; this figure assumes
farming to age 80.0, but the farm through any assumed age may be
read from Table 12; for example, the farming loss through age 73,
Captain Ogonowski's health life expectancy, is $1,290,970.

II. LOSS OF VALUE OF LIFE

Tables 13 through 15 show the loss of the value of life.
Economists have long agreed that life is valued at more than the
lost earnings capacity. My estimate of the value of life is
based on many economic studies on what we, as a contemporary
society, actually pay to preserve the ability to lead a normal
life. The studies examine incremental pay for risky occupations
as well as a multitude of data regarding expenditure for life
savings by individuals, industry, and state and federal agencies.
Based on the average value of a statistical life and life
expectancy of 80.0 years, my opinion of the loss of the value of
life for John Ogonowski is $3,735,530 ► Table 15.

My estimate of the value of life is consistent with estimates
published in other studies that examine and review the broad
spectrum of economic literature on the value of life. Among
these is "The Plausible Range for the Value of Life," Journal of

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Forensic Economics, Vol. 3, No. 3, Fall 1990, pp. 17-39, by T. R. Miller. This study reviews 67 different estimates of the value of life published by economists in peer-reviewed academic journals. The Miller results, in most instances, show the value of life to range from approximately $1.6 million to $2.9 million dollars in year 1988 after-tax dollars, with a mean of approximately $2.2 million dollars. In "The Value of Life: Estimates with Risks by Occupation and Industry," Economic Inquiry, Vol. 42, No. 1, May 2003, pp. 29-48, Professor W. K. Viscusi estimates the value of life to be approximately $4.7 million dollars in year 2000 dollars. An early seminal paper on the value of life was written by Richard Thaler and Sherwin Rosen, "The Value of Saving a Life: Evidence from the Labor Market." in N.E. Terlickyj (ed.), Household Production and Consumption. New York: Columbia University Press, 1975, pp. 265-300. The Meta-Analyses Appendix to this report reviews additional literature suggesting a value of life of approximately $5.4 million in year 2008 dollars.

Because it is generally accepted by economists, the economic methodology for the valuation of life has been found to meet the Daubert and Frye standards by many courts, along with the Rules of Evidence in many states nationwide. My testimony on the value of life has been accepted in approximately 225 state and federal cases nationwide in approximately two-thirds of the states and two-thirds of the federal jurisdictions. Testimony has been accepted by U.S. district and appellate courts as well as in state circuit, appellate, and supreme courts. Proof of general acceptance and other standards is found in a discussion of the extensive references to the scientific economic peer-reviewed literature on the value of life listed in the **Value of Life Appendix** to this report.

The underlying, academic, peer-reviewed studies fall into two general groups: (1) consumer behavior and purchases of safety devices; (2) wage risk premiums to workers; in addition, there is a third group of studies consisting of cost-benefit analyses of regulations. For example, one consumer safety study analyzes the costs of smoke detectors and the lifesaving reduction associated with them. One wage premium study examines the differential rates of pay for dangerous occupations with a risk of death on the job. Just as workers receive shift premiums for undesirable work hours, workers also receive a higher rate of pay to accept a increased risk of death on the job. A study of government regulation examines the lifesaving resulting from the installation of smoke stack scrubbers at high-sulphur, coal-burning power plants. As a hypothetical example of the methodology, assume that a safety device such as a carbon monoxide detector costs $46 and results in lowering a person's risk of premature death by one chance in 100,000. The cost per life saved is obtained by dividing $46 by the one in 100,000 probability, yielding $4,600,000. Overall, based on the peer-

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reviewed economic literature, I estimate the central tendency of the range of the economic studies to be approximately $4.9 million in year 2019 dollars.

Other factors may be weighed to determine if these estimated losses for John Ogonowski should be adjusted because of special qualities or circumstances that economists do not as yet have a methodology for analysis.

In each set of tables, the estimated losses are calculated from September 11, 2001 through an assumed trial or resolution date of January 1, 2020, and from that date thereafter. The last table in each set accumulates the past and future estimated losses. These estimates are provided as a tool, an aid, and a guide to assist the evaluation by others.

All opinions expressed in this report are clearly labeled as such. They are rendered in accordance with generally accepted standards within the field of economics and are expressed to a reasonable degree of economic certainty. Estimates, assumptions, illustrations and the use of benchmarks, which are not opinions, but which can be viewed as hypothetical in nature, are also clearly disclosed and identified herein.

In my opinion, it is reasonable for experts in the field of economics and finance to rely on the materials and information I reviewed in this case for the formulation of my substantive opinions herein.

If additional information is provided to me, which could alter my opinions, I may incorporate any such information into an update, revision, addendum, or supplement of the opinions expressed in this report.

If you have any questions, please do not hesitate to call me.

Sincerely,

Stan V. Smith

Stan V. Smith, Ph.D.
President

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APPENDIX: VALUE OF LIFE

The economic methodology for the valuation of life has been found to meet the Daubert and Frye standards by many courts, along with the Rules of Evidence in many states nationwide. My testimony on the value of life has been accepted in approximately 225 state and federal cases nationwide in approximately two-thirds of the states and two-thirds of the federal jurisdictions. Testimony has been accepted by U.S. district and appellate courts as well as in state circuit, appellate, and supreme courts. The Daubert standard sets forth four criteria:

1.   Testing of the theory and science

2.   Peer Review

3.   Known or potential rate of error

4.   Generally accepted.

Testing of the theory and science has been accomplished over the past four decades, since the 1960s. Dozens of economists of high renown have published over a hundred articles in high quality, peer-reviewed economic journals measuring the value of life. The value of life theories are perhaps among the most well-tested in the field of economics, as evidenced by the enormous body of economic scientific literature that has been published in the field and is discussed below.

Peer Review of the concepts and methodology have been extraordinarily extensive. One excellent review of this extensive, peer-reviewed literature can be found in "The Value of Risks to Life and Health," W. K. Viscusi, Journal of Economic Literature, Vol. 31, December 1993, pp. 1912-1946. A second is "The Value of a Statistical Life: A Critical Review of Market Estimates throughout the World." W. K. Viscusi and J. E. Aldy, Journal of Risk and Uncertainty, Vol. 27, No. 1, November 2002, pp. 5-76. Additional theoretical and empirical work by Viscusi, a leading researcher in the field, can be found in: "The Value of Life", W. K. Viscusi, John M. Olin Center for Law, Economics, and Business, Harvard Law School, Discussion Paper No. 517, June 2005. An additional peer-reviewed article discusses the application to forensic economics: "The Plausible Range for the Value of Life," T. R. Miller, Journal of Forensic Economics, Vol. 3, No. 3, Fall 1990, pp. 17-39, which discusses the many dozens of articles published in other peer-reviewed economic journals on this topic. This concept is discussed in detail in "Willingness to Pay Comes of Age: Will the System Survive?" T. R. Miller, Northwestern University Law Review, Summer 1989, pp. 876-907, and "Hedonic Damages in Personal Injury and Wrongful Death

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Litigation," by Stan V. Smith in Gaughan and Thornton, eds.,
Litigation Economics, Contemporary Studies in Economic and
Financial Analysis, Vol. 74, pp. 39-59, JAI Press, Greenwich,
CT, 1993. Kenneth Arrow, a Nobel Laureate in economics,
discusses this method for valuing life in "Invaluable Goods,"
Journal of Economic Literature, Vol. 35, No. 2, 1997, pp. 759.
See the Meta-Analyses Appendix for an additional review of the
literature.

The known or potential rate of error is well researched. All of
these articles discuss the known or potential rate of error, well
within the acceptable standard in the field of economics,
generally using a 95% confidence rate for the statistical testing
and acceptance of results. There are few areas in the field of
economics where the known or potential rate of error has been as
well-accepted and subject to more extensive investigation.

General Acceptance of the concepts and methodology on the value
of life in the field of economics is extensive. This methodology
is and has been generally accepted in the field of economics for
many years. Indeed, according to the prestigious and highly-
regarded research institute, The Rand Corporation, by 1988, the
peer-reviewed scientific methods for estimating the value of life
were well-accepted: "Most economists would agree that the
willingness-to-pay methodology is the most conceptually
appropriate criterion for establishing the value of life,"
Computing Economic loss in Cases of Wrongful Death, King and
Smith, Rand Institute for Civil Justice, R-3549-ICJ, 1988.

While first discussed in cutting edge, peer-reviewed economic
journals, additional proof of general acceptance is now indicated
by the fact that this methodology is now taught in standard
economics courses at the undergraduate and graduate level
throughout hundreds of colleges and universities nationwide as
well as the fact that it is taught and discussed in widely-
accepted textbooks in the field of law and economics: Economics,
Sixth Edition, David C. Colander, McGraw-Hill Irwin, Boston,
2006, pp. 463-465; this introductory economics textbook is the
third most widely used textbook in college courses nationwide.
Hamermesh and Rees's The Economics of Work and Pay, Harper-
Collins, 1993, Chapter 13, a standard advanced textbook in labor
economics, also discusses the methodology for valuing life.
Other textbooks discuss this topic as well. Richard Posner, a
Judge and former Chief Judge of the U.S. Court of Appeals for the
highly regarded 7th Circuit and Senior Lecturer at the University
of Chicago Law School, one of most prolific legal writers in
America, details the Value of Life approach in his widely used
textbooks: Economic Analysis of Law, 1986, Little Brown & Co.,
pp. 182-185 and Tort Law, 1982, Little Brown & Co., pp. 120-126.

As further evidence of general acceptance in the field, some
surveys (albeit non-scientific) published in the field of

forensic economics show that hundreds of economists nationwide are now familiar with this methodology and are available to prepare (and critique) forensic economic value of life estimates. Indeed, some economists who indicate they will prepare such analysis for plaintiffs also are willing to critique such analysis for defendants, as I have done. That an economist is willing to critique a report does not indicate that he or she is opposed to the concept or the methodology, but merely available to assure that the plaintiff economist has employed proper techniques. The fact that there are economists who indicate they do not prepare estimates of value of life is again no indication that they oppose the methodology: many claim they are not familiar with the literature and untrained in this area. While some CPAs and others without a degree in economics have opposed these methods, such professionals do not have the requisite academic training and are unqualified to make such judgements. However, as in any field of economics, this area is not without any dissent. General acceptance does not mean universal acceptance.

Additional evidence of general acceptance in the field is found in the teaching of the concepts regarding the value of life. Forensic Economics is now taught as a special field in a number of institutions nationwide. I taught what is believed to be the first course ever presented in the field of Forensic Economics at DePaul University in Spring, 1990. My own book, Economic/Hedonic Damages, Anderson, 1990, and supplemental updates thereto, co-authored with Dr. Michael Brookshire, a Professor of Economics in West Virginia, has been used as a textbook in at least 5 colleges and universities nationwide in such courses in economics, and has a thorough discussion of the methodology. Toppino et. al., in "Forensic Economics in the Classroom," published in The Earnings Analyst, Journal of the American Rehabilitation Economics Association, Vol. 4, 2001, pp. 53-86, indicate that hedonic damages is one of 15 major topic areas taught in such courses.

Lastly, general acceptance is found by examining publications in the primary journal in the field of Forensic Economics, which is the peer-reviewed Journal of Forensic Economics, where there have been published many articles on the value of life. Some are cited above. Others include: "The Econometric Basis for Estimates of the Value of Life," W. K. Viscusi, Vol 3, No. 3, Fall 1990, pp. 61-70; "Hedonic Damages in the Courtroom Setting." Stan V. Smith, Vol. 3, No. 3, Fall 1990, pp. 41-49; "Issues Affecting the Calculated Value of Life," E. P. Berla, M. L. Brookshire and Stan V. Smith, Vol 3, No. 1, 1990, pp. 1-8; "Hedonic Damages and Personal Injury: A Conceptual Approach." G. R. Albrecht, Vol. 5., No. 2, Spring/Summer 1992, pp. 97-104; "The Application of the Hedonic Damages Concept to Wrongful and Personal Injury Litigation." G. R. Albrecht, Vol. 7, No. 2, Spring/Summer 1994, pp. 143-150; and also "A Review of the Monte Carlo Evidence Concerning Hedonic Value of Life Estimates," R. F.

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Gilbert, Vol. 8, No. 2, Spring/Summer 1995, pp. 125-130.
Professor Ike Mathur, while Chairman of the Department of Finance
at Southern Illinois University wrote an article on how the value
of life studies can be used to provide a basis for estimating the
value of life per year in application to litigation. This
article corroborates my approach: "Estimating Value of Life per
Life Year." I. Mathur, Journal of Forensic Economics, Vol. 3,
No. 3, 1990, pp. 95-96. As do many of the authors of
applications of the value of life literature to litigation
economics, Professor Mathur has frequently testified in court,
and courts have admitted his testimony.

It is important to note that this methodology is endorsed and
employed by the U. S. Government as the standard and recommended
approach for use by all U. S. Agencies in valuing life for policy
purposes, as mandated in current and past Presidential Executive
Orders in effect since 1972, and as discussed in "Report to
Congress on the Costs and Benefits of Federal Regulations,"
Office of Management and Budget, 1998, and "Economic Analysis of
Federal Regulations Under Executive Order 12866," Executive
Office of the President, Office of Management and Budget, pp. 1-
37, and "Report to the President on Executive Order No. 12866,"
Regulatory Planning and Review, May 1, 1994, Office of
Information and Regulatory Affairs, Office of Management and
Budget. Prior presidents signed similar orders as discussed in
"Federal Agency Valuations of Human life," Administrative
Conference of the United States, Report for Recommendation 88-7,
December 1988, pp. 368-408. 926

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APPENDIX: META-ANALYSES AND VALUE OF LIFE RESULTS SINCE 2000

Below I list the principal systematic reviews (meta-analyses), since the year 2000, of the value of life literature, and the values of a statistical life that they recommend. In statistics, a meta-analysis combines the results of several studies that address a set of related research hypotheses. Meta-analysis increase the statistical power of studies by analyzing a group of studies and provide a more powerful and accurate data analysis than would result from analyzing each study alone. Based on those reviews, the Summary Table suggests a best estimate. The following table summarizes the studies and their findings.

These statistically based studies place the value between $4.4 and $7.5 million, with $5.9 million in year 2005 dollars representing a conservative yet credible estimate of the average (and range midpoint) of the values of a statistical life published in the studies in year 2005 dollars. Net of human capital, a credible net value of life based on all these literature reviews to be $4.8 million in year 2005 dollars, or $5.4 million in year 2008 dollars.

The actual value that I use, $4.1 million in year 2008 dollars ($4.9 million in year 2019 dollars) is approximately 24 percent lower than a conservative average estimate based on the credible meta-analyses. This value was originally based on a review conducted in the late 1980s, averaging the results published by that time. I have increased that late 1980s value only by inflation over time, despite the fact a review of literature over the years since that time has put obvious upward pressure on the figure that I use.

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VALUE OF STATISTICAL LIFE SUMMARY TABLE

Mean and range of value of statistical life estimates (in 2005 dollars) from the best meta-analyses and systematic reviews since 2000 and characteristics of those reviews.

Study	Formal Meta-Analysis?	Number of Values	Best Estimate (2005 Dollars)	Range	Context
Miller 2000	Yes	68 estimates	$5.1M	$4.5-$6.2M	US estimate from all
Mrozek & Taylor 2002	Yes	203 estimates	$4.4M	+ or - 35%	Labor market
Viscusi & Aldy 2003	Yes	49 estimates	$6.5M	$5.1-$9.6M	Labor market, US estimate from all
Kochi et al. 2006	Yes	234 estimates	$6.0M	+ or - 44%	Labor market survey
Bellavance 2006 (published in 2009)	Yes	37 estimates	$7.5M	+ or - 19%	Labor market

Adapted from Ted R. Miller's paper "Hedonic Damages," Journal of Forensic Economics, Vol. 20, No. 2 (October 2008), pp. 137-153.

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Miller (2000) started from the Miller 1989 JFE estimates and used statistical methods to adjust for differences between studies. It also added newer studies, primarily ones outside the United States. The authors specified the most appropriate study approach a priori, which allowed calculation of a best estimate from the statistical regression. Miller, Ted R, "Variations between Countries in Values of Statistical Life", Journal of Transport Economics and Policy, Vol. 34, No. 2 (May 2000), pp. 169-188.

Mrozek and Taylor (2002) searched intensively for studies of the value of life implied by wages paid for risky jobs. They coded all values from each study rather than a most appropriate estimate. A statistical analysis identified what factors accounted for the differences in values between studies. The authors specified the most appropriate study approach a priori, which allowed calculation of a best estimate from the statistical regression. Mrozek, Janusz R. and Laura O. Taylor, "What Determines the Value of Life? A Meta-Analysis", Journal of Policy Analysis and Management, Vol. 21, No. 2 (2002), pp. 253-270.

Viscusi and Aldy (2003) focused on values from labor market studies that they considered of high quality and that provided data on risk levels and other important explanatory variables. They used statistical methods to account for variations between studies and derive a best estimate. W.K. Viscusi and J.E. Aldy, "The Value of a Statistical Life: A Critical Review of Market Estimates Throughout the World", Journal of Risk and Uncertainty, Vol. 27, No. 1 (2003), pp. 5-76.

Kochi et al. (2006) searched intensively for studies of the value of life implied by wages and coded all values from each study rather than a most appropriate estimate. They did not filter study quality carefully. The best estimate was derived by statistical methods based on the distribution of the values within and across studies. Kochi, Ikuho, Bryan Hubbell, and Randall Kramer, "An Empirical Bayes Approach to Combining and Comparing Estimates of the Value of a Statistical Life for Environmental Policy Analysis", Environmental and Resource Economics, Vol. 34 (2006), pp. 385-406.

Bellavance et al. (2009) focused on values from labor market studies that they considered of high quality and that provided data on risk levels and other important explanatory variables. They used statistical methods to account for variations between studies and derive a best estimate. Bellavance, Francois, Georges Dionne, and Martin Lebeau, "The Value of a Statistical Life: A Meta-Analysis with a Mixed Effects Regression Model," Journal of Health Economics, Vol. 28, Issue 2, (2009), pp. 444-464. 3A22

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SUMMARY OF LOSSES FOR JOHN OGONOWSKI

TABLE	DESCRIPTION	ESTIMATE
*****	********************************	***********
	EARNINGS	
	LOSS OF WAGES & BENEFITS, NET OF PERSONAL CONSUMPTION	
9	Annual Employment to age 67	$4,657,301
	--	
	FARM SERVICES	
12	LOSS OF FARM SERVICES	$1,290,970
	--	
	LOSS OF ENJOYMENT OF LIFE	
15	LOSS OF VALUE OF LIFE	$3,735,530

The information on this Summary of Losses is intended to summarize losses under certain given assumptions. Please refer to the report and the tables for all the opinions.

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Table 1

LOSS OF PAST WAGES
2001 - 2019

YEAR	AGE	WAGES	CUMULATE
2001	50	$61,476	$61,476
2002	51	227,789	289,265
2003	52	242,683	531,948
2004	53	250,584	782,532
2005	54	259,143	1,041,675
2006	55	265,727	1,307,402
2007	56	276,572	1,583,974
2008	57	276,825	1,860,799
2009	58	284,358	2,145,157
2010	59	288,611	2,433,768
2011	60	297,161	2,730,929
2012	61	302,335	3,033,264
2013	62	306,875	3,340,139
2014	63	309,197	3,649,336
2015	64	311,452	3,960,788
2016	65	317,914	4,278,702
2017	66	324,619	4,603,321
2018	67	330,820	4,934,141
2019	68	337,436	$5,271,577

OGONOWSKI $5,271,577

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Table 2

LOSS OF PAST EMPLOYEE BENEFITS
2001 - 2019

YEAR	AGE	EMPLOYEE BENEFITS	CUMULATE
****	***	**********	**********
2001	50	$18,012	$18,012
2002	51	66,742	84,754
2003	52	71,106	155,860
2004	53	73,421	229,281
2005	54	75,929	305,210
2006	55	77,858	383,068
2007	56	81,036	464,104
2008	57	81,110	545,214
2009	58	83,317	628,531
2010	59	84,563	713,094
2011	60	87,068	800,162
2012	61	88,584	888,746
2013	62	89,914	978,660
2014	63	90,595	1,069,255
2015	64	91,255	1,160,510
2016	65	93,149	1,253,659
2017	66	95,113	1,348,772
2018	67	96,930	1,445,702
2019	68	98,869	$1,544,571

OGONOWSKI $1,544,571

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Table 3

LOSS OF PAST PERSONAL CONSUMPTION
2001 - 2019

YEAR	AGE	PERSONAL CONSUMPTION	CUMULATE
****	***	***********	*********
2001	50	-$5,164	-$5,164
2002	51	-19,134	-24,298
2003	52	-20,385	-44,683
2004	53	-21,049	-65,732
2005	54	-21,768	-87,500
2006	55	-22,321	-109,821
2007	56	-23,232	-133,053
2008	57	-31,503	-164,556
2009	58	-32,360	-196,916
2010	59	-37,693	-234,609
2011	60	-38,809	-273,418
2012	61	-39,485	-312,903
2013	62	-49,990	-362,893
2014	63	-50,368	-413,261
2015	64	-50,736	-463,997
2016	65	-51,788	-515,785
2017	66	-52,880	-568,665
2018	67	-53,891	-622,556
2019	68	-54,968	-$677,524

OGONOWSKI   -$677,524

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Table 4

ECONOMIC LOSS TO DATE
2001 - 2019

YEAR	AGE	WAGES	EMPLOYEE BENEFITS	PERSONAL CONSUMPTION	TOTAL	CUMULATE
****	***	**********	**********	***********	**********	**********
2001	50	$61,476	$18,012	-$5,164	$74,324	$74,324
2002	51	227,789	66,742	-19,134	275,397	349,721
2003	52	242,683	71,106	-20,385	293,404	643,125
2004	53	250,584	73,421	-21,049	302,956	946,081
2005	54	259,143	75,929	-21,768	313,304	1,259,385
2006	55	265,727	77,858	-22,321	321,264	1,580,649
2007	56	276,572	81,036	-23,232	334,376	1,915,025
2008	57	276,825	81,110	-31,503	326,432	2,241,457
2009	58	284,358	83,317	-32,360	335,315	2,576,772
2010	59	288,611	84,563	-37,693	335,481	2,912,253
2011	60	297,161	87,068	-38,809	345,420	3,257,673
2012	61	302,335	88,584	-39,485	351,434	3,609,107
2013	62	306,875	89,914	-49,990	346,799	3,955,906
2014	63	309,197	90,595	-50,368	349,424	4,305,330
2015	64	311,452	91,255	-50,736	351,971	4,657,301
2016	65	317,914	93,149	-51,788	359,275	5,016,576
2017	66	324,619	95,113	-52,880	366,852	5,383,428
2018	67	330,820	96,930	-53,891	373,859	5,757,287
2019	68	337,436	98,869	-54,968	381,337	$6,138,624
OGONOWSKI		$5,271,577	$1,544,571	-$677,524	$6,138,624	

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Table 5

PRESENT VALUE OF FUTURE WAGES
2020 - 2031

YEAR	AGE	WAGES	DISCOUNT FACTOR	PRESENT VALUE	CUMULATE
****	***	********	********	**********	**********
2020	69	$344,185	0.98765	$339,934	$339,934
2021	70	344,185	0.97546	335,739	675,673
2022	71	344,185	0.96342	331,595	1,007,268
2023	72	344,185	0.95152	327,499	1,334,767
2024	73	344,185	0.93978	323,458	1,658,225
2025	74	344,185	0.92817	319,462	1,977,687
2026	75	344,185	0.91672	315,521	2,293,208
2027	76	344,185	0.90540	311,625	2,604,833
2028	77	344,185	0.89422	307,777	2,912,610
2029	78	344,185	0.88318	303,977	3,216,587
2030	79	344,185	0.87228	300,226	3,516,813
2031	80	50,921	0.87067	44,335	$3,561,148

JOHN OGONOWSKI $3,561,148

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Table 6

PRESENT VALUE OF FUTURE EMPLOYEE BENEFITS
2020 - 2031

YEAR	AGE	EMPLOYEE BENEFITS	DISCOUNT FACTOR	PRESENT VALUE	CUMULATE
****	***	********	********	**********	**********
2020	69	$100,846	0.98765	$99,601	$99,601
2021	70	100,846	0.97546	98,371	197,972
2022	71	100,846	0.96342	97,157	295,129
2023	72	100,846	0.95152	95,957	391,086
2024	73	100,846	0.93978	94,773	485,859
2025	74	100,846	0.92817	93,602	579,461
2026	75	100,846	0.91672	92,448	671,909
2027	76	100,846	0.90540	91,306	763,215
2028	77	100,846	0.89422	90,179	853,394
2029	78	100,846	0.88318	89,065	942,459
2030	79	100,846	0.87228	87,966	1,030,425
2031	80	14,920	0.87067	12,990	$1,043,415

JOHN OGONOWSKI $1,043,415

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Table 7

PRESENT VALUE OF FUTURE PERSONAL CONSUMPTION
2020 - 2031

YEAR	AGE	PERSONAL CONSUMPTION	DISCOUNT FACTOR	PRESENT VALUE	CUMULATE
****	***	***********	********	*********	*********
2020	69	-$56,068	0.98765	-$55,376	-$55,376
2021	70	-56,068	0.97546	-54,692	-110,068
2022	71	-56,068	0.96342	-54,017	-164,085
2023	72	-56,068	0.95152	-53,350	-217,435
2024	73	-56,068	0.93978	-52,692	-270,127
2025	74	-56,068	0.92817	-52,041	-322,168
2026	75	-56,068	0.91672	-51,399	-373,567
2027	76	-56,068	0.90540	-50,764	-424,331
2028	77	-56,068	0.89422	-50,137	-474,468
2029	78	-56,068	0.88318	-49,518	-523,986
2030	79	-56,068	0.87228	-48,907	-572,893
2031	80	-8,295	0.87067	-7,222	-$580,115

JOHN OGONOWSKI   -$580,115

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Table 8

PRESENT VALUE OF FUTURE WAGE AND BENEFIT LOSS
2020 - 2031

YEAR	AGE	WAGES	EMPLOYEE BENEFITS	PERSONAL CONSUMPTION	TOTAL	CUMULATE
2020	69	$339,934	$99,601	-$55,376	$384,159	$384,159
2021	70	335,739	98,371	-54,692	379,418	763,577
2022	71	331,595	97,157	-54,017	374,735	1,138,312
2023	72	327,499	95,957	-53,350	370,106	1,508,418
2024	73	323,458	94,773	-52,692	365,539	1,873,957
2025	74	319,462	93,602	-52,041	361,023	2,234,980
2026	75	315,521	92,448	-51,399	356,570	2,591,550
2027	76	311,625	91,306	-50,764	352,167	2,943,717
2028	77	307,777	90,179	-50,137	347,819	3,291,536
2029	78	303,977	89,065	-49,518	343,524	3,635,060
2030	79	300,226	87,966	-48,907	339,285	3,974,345
2031	80	44,335	12,990	-7,222	50,103	$4,024,448
OGONOWSKI		$3,561,148	$1,043,415	-$580,115	$4,024,448	

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Table 9

PRESENT VALUE OF NET WAGE AND BENEFIT LOSS
2001 - 2031

YEAR	AGE	WAGES	EMPLOYEE BENEFITS	PERSONAL CONSUMPTION	TOTAL	CUMULATE
****	***	**********	**********	***********	***********	***********
2001	50	$61,476	$18,012	-$5,164	$74,324	$74,324
2002	51	227,789	66,742	-19,134	275,397	349,721
2003	52	242,683	71,106	-20,385	293,404	643,125
2004	53	250,584	73,421	-21,049	302,956	946,081
2005	54	259,143	75,929	-21,768	313,304	1,259,385
2006	55	265,727	77,858	-22,321	321,264	1,580,649
2007	56	276,572	81,036	-23,232	334,376	1,915,025
2008	57	276,825	81,110	-31,503	326,432	2,241,457
2009	58	284,358	83,317	-32,360	335,315	2,576,772
2010	59	288,611	84,563	-37,693	335,481	2,912,253
2011	60	297,161	87,068	-38,809	345,420	3,257,673
2012	61	302,335	88,584	-39,485	351,434	3,609,107
2013	62	306,875	89,914	-49,990	346,799	3,955,906
2014	63	309,197	90,595	-50,368	349,424	4,305,330
2015	64	311,452	91,255	-50,736	351,971	4,657,301
2016	65	317,914	93,149	-51,788	359,275	5,016,576
2017	66	324,619	95,113	-52,880	366,852	5,383,428
2018	67	330,820	96,930	-53,891	373,859	5,757,287
2019	68	337,436	98,869	-54,968	381,337	6,138,624
2020	69	339,934	99,601	-55,376	384,159	6,522,783
2021	70	335,739	98,371	-54,692	379,418	6,902,201
2022	71	331,595	97,157	-54,017	374,735	7,276,936
2023	72	327,499	95,957	-53,350	370,106	7,647,042
2024	73	323,458	94,773	-52,692	365,539	8,012,581
2025	74	319,462	93,602	-52,041	361,023	8,373,604
2026	75	315,521	92,448	-51,399	356,570	8,730,174
2027	76	311,625	91,306	-50,764	352,167	9,082,341
2028	77	307,777	90,179	-50,137	347,819	9,430,160
2029	78	303,977	89,065	-49,518	343,524	9,773,684
2030	79	300,226	87,966	-48,907	339,285	10,112,969
2031	80	44,335	12,990	-7,222	50,103	$10,163,072
OGONOWSKI		$8,832,725	$2,587,986	-$1,257,639	$10,163,072	

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Table 10

LOSS OF PAST FARM SERVICES
2001 - 2019

YEAR	AGE	FARM SERVICES	CUMULATE
****	***	********	********
2001	50	$12,022	$12,022
2002	51	40,343	52,365
2003	52	42,468	94,833
2004	53	44,342	139,175
2005	54	45,690	184,865
2006	55	47,468	232,333
2007	56	49,405	281,738
2008	57	50,859	332,597
2009	58	51,394	383,991
2010	59	52,024	436,015
2011	60	52,292	488,307
2012	61	55,361	543,668
2013	62	55,361	599,029
2014	63	56,782	655,811
2015	64	58,181	713,992
2016	65	59,423	773,415
2017	66	61,213	834,628
2018	67	63,003	897,631
2019	68	64,893	$962,524

OGONOWSKI $962,524

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Table 11

PRESENT VALUE OF FUTURE FARM SERVICES
2020 - 2031

YEAR	AGE	FARM SERVICES	DISCOUNT FACTOR	PRESENT VALUE	CUMULATE
****	***	*********	********	********	********
2020	69	$66,840	0.98765	$66,015	$66,015
2021	70	67,508	0.97546	65,851	131,866
2022	71	68,183	0.96342	65,689	197,555
2023	72	68,865	0.95152	65,526	263,081
2024	73	69,554	0.93978	65,365	328,446
2025	74	70,250	0.92817	65,204	393,650
2026	75	70,953	0.91672	65,044	458,694
2027	76	71,663	0.90540	64,884	523,578
2028	77	72,380	0.89422	64,724	588,302
2029	78	73,104	0.88318	64,564	652,866
2030	79	73,835	0.87228	64,405	717,271
2031	80	11,033	0.87067	9,606	$726,877

JOHN OGONOWSKI $726,877

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Table 12

PRESENT VALUE OF NET FARM SERVICES LOSS
2001 - 2031

YEAR	AGE	FARM SERVICES	CUMULATE
****	***	**********	**********
2001	50	$12,022	$12,022
2002	51	40,343	52,365
2003	52	42,468	94,833
2004	53	44,342	139,175
2005	54	45,690	184,865
2006	55	47,468	232,333
2007	56	49,405	281,738
2008	57	50,859	332,597
2009	58	51,394	383,991
2010	59	52,024	436,015
2011	60	52,292	488,307
2012	61	55,361	543,668
2013	62	55,361	599,029
2014	63	56,782	655,811
2015	64	58,181	713,992
2016	65	59,423	773,415
2017	66	61,213	834,628
2018	67	63,003	897,631
2019	68	64,893	962,524
2020	69	66,015	1,028,539
2021	70	65,851	1,094,390
2022	71	65,689	1,160,079
2023	72	65,526	1,225,605
2024	73	65,365	1,290,970
2025	74	65,204	1,356,174
2026	75	65,044	1,421,218
2027	76	64,884	1,486,102
2028	77	64,724	1,550,826
2029	78	64,564	1,615,390
2030	79	64,405	1,679,795
2031	80	9,606	$1,689,401

OGONOWSKI $1,689,401

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Table 13

LOSS OF PAST LVL OF JOHN
2001 - 2019

YEAR	AGE	LVL	CUMULATE
2001	50	$29,936	$29,936
2002	51	100,782	130,718
2003	52	102,677	233,395
2004	53	106,024	339,419
2005	54	109,650	449,069
2006	55	112,436	561,505
2007	56	117,023	678,528
2008	57	117,128	795,656
2009	58	120,314	915,970
2010	59	112,119	1,028,089
2011	60	125,734	1,153,823
2012	61	127,921	1,281,744
2013	62	129,840	1,411,584
2014	63	130,827	1,542,411
2015	64	131,782	1,674,193
2016	65	134,510	1,808,703
2017	66	137,348	1,946,051
2018	67	139,971	2,086,022
2019	68	142,771	$2,228,793

OGONOWSKI $2,228,793

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Table 14

PRESENT VALUE OF FUTURE LVL OF JOHN
2020 - 2031

YEAR	AGE	LVL	DISCOUNT FACTOR	PRESENT VALUE	CUMULATE
****	***	********	********	**********	**********
2020	69	$145,626	0.98765	$143,828	$143,828
2021	70	145,626	0.97546	142,052	285,880
2022	71	145,626	0.96342	140,299	426,179
2023	72	145,626	0.95152	138,566	564,745
2024	73	145,626	0.93978	136,856	701,601
2025	74	145,626	0.92817	135,166	836,767
2026	75	145,626	0.91672	133,498	970,265
2027	76	145,626	0.90540	131,850	1,102,115
2028	77	145,626	0.89422	130,222	1,232,337
2029	78	145,626	0.88318	128,614	1,360,951
2030	79	145,626	0.87228	127,027	1,487,978
2031	80	21,545	0.87067	18,759	$1,506,737

JOHN OGONOWSKI $1,506,737

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Table 15

PRESENT VALUE OF NET LVL OF JOHN
2001 - 2031

YEAR	AGE	LVL	CUMULATE
2001	50	$29,936	$29,936
2002	51	100,782	130,718
2003	52	102,677	233,395
2004	53	106,024	339,419
2005	54	109,650	449,069
2006	55	112,436	561,505
2007	56	117,023	678,528
2008	57	117,128	795,656
2009	58	120,314	915,970
2010	59	112,119	1,028,089
2011	60	125,734	1,153,823
2012	61	127,921	1,281,744
2013	62	129,840	1,411,584
2014	63	130,827	1,542,411
2015	64	131,782	1,674,193
2016	65	134,510	1,808,703
2017	66	137,348	1,946,051
2018	67	139,971	2,086,022
2019	68	142,771	2,228,793
2020	69	143,828	2,372,621
2021	70	142,052	2,514,673
2022	71	140,299	2,654,972
2023	72	138,566	2,793,538
2024	73	136,856	2,930,394
2025	74	135,166	3,065,560
2026	75	133,498	3,199,058
2027	76	131,850	3,330,908
2028	77	130,222	3,461,130
2029	78	128,614	3,589,744
2030	79	127,027	3,716,771
2031	80	18,759	$3,735,530

OGONOWSKI $3,735,530

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